U.S. Army Corps of Engineers

Risk Management Chain Training

CONTACT:

Samuel G. Testerman, PE, CSP

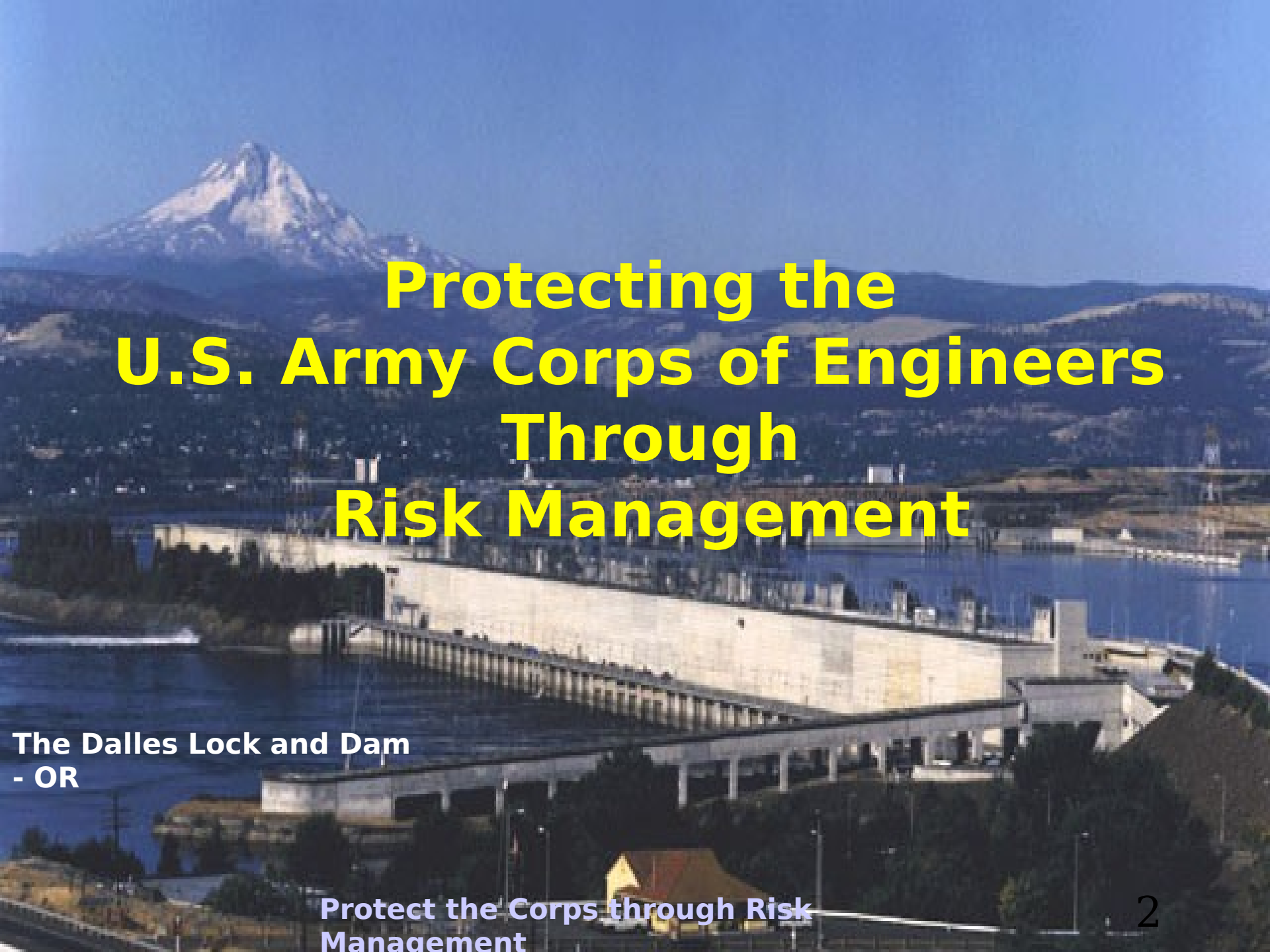
Systems and Engineering Program Manager

202-762-8668

DSN: 763-8668

TO USE:

Win95/98/2000 – Go to the "Start" button, select "Run", and enter D:\PPVIEW32.EXE" (where D:\ is your CD-ROM drive). Follow instructions on screen. Select RISK.PPT to run. Detailed instructions in "README.TXT" file on disk.



Protecting the U.S. Army Corps of Engineers Through Risk Management

The Dalles Lock and Dam - OR

- **Risk management is fundamental in developing a confident and competent workforce**

- **Our challenge is to integrate risk management in every task we undertake.**

Purpose of Risk Management Training

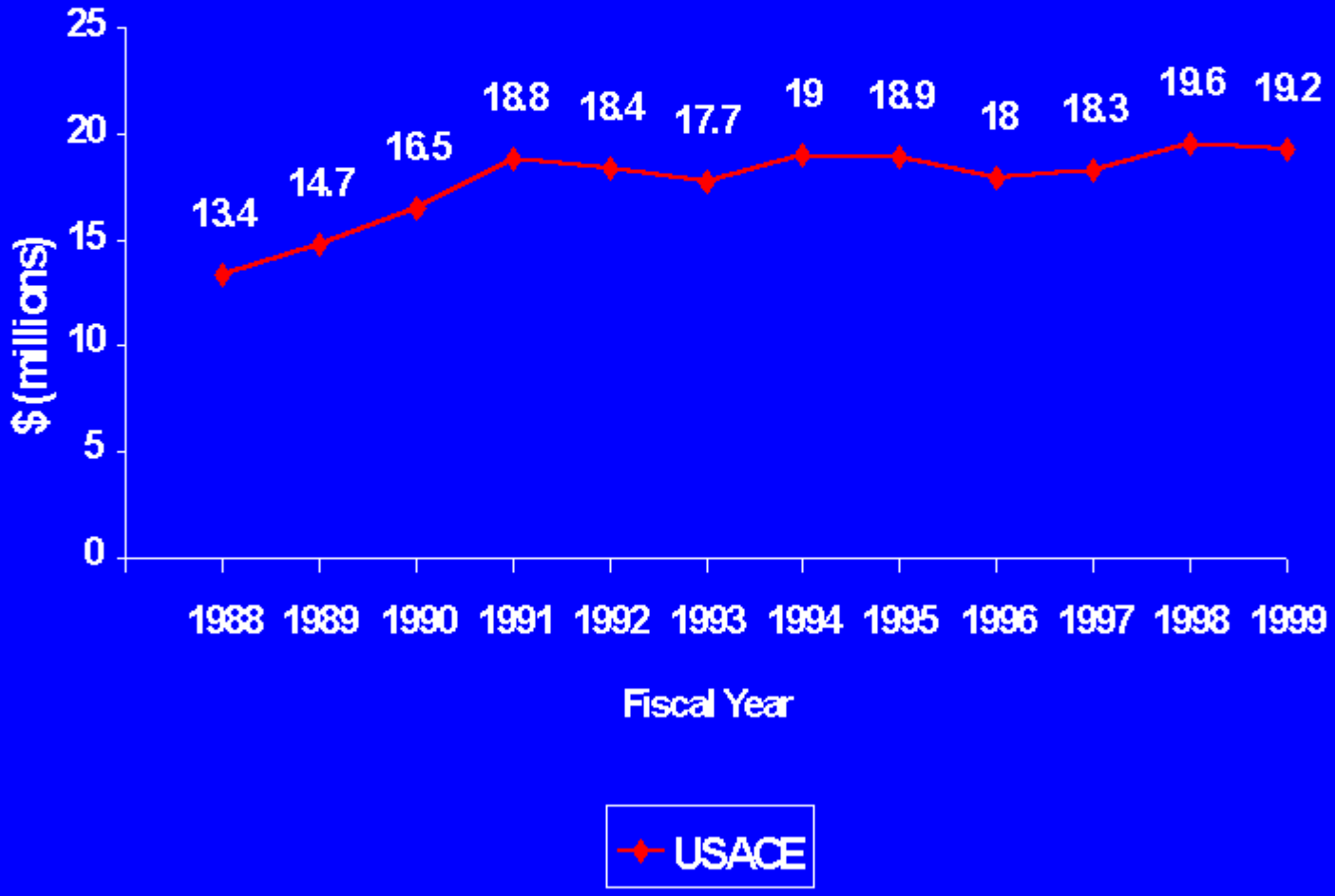
Protect the Corps through Risk Management

Purpose of Risk Management Training

- To familiarize all Corps employees with the risk management process
- To provide management at all levels with the tools they need to implement risk management.

US Army Corps of Engineers ®

USACE Annual Workers' Compensation Bill



Dollars are not constant but include annual inflation adjustments.

Risk Management (RM) Training Agenda

- Risk Management Process
- Scenarios

J Strom Thurmond - SC

Risk Management - What Is It?

Cook Inlet - AK

Risk Management - What Is It?

- The process of identifying, assessing, and controlling hazards

- A systematic five-step process that can be applied to all aspects of our work.

Risk Management Process

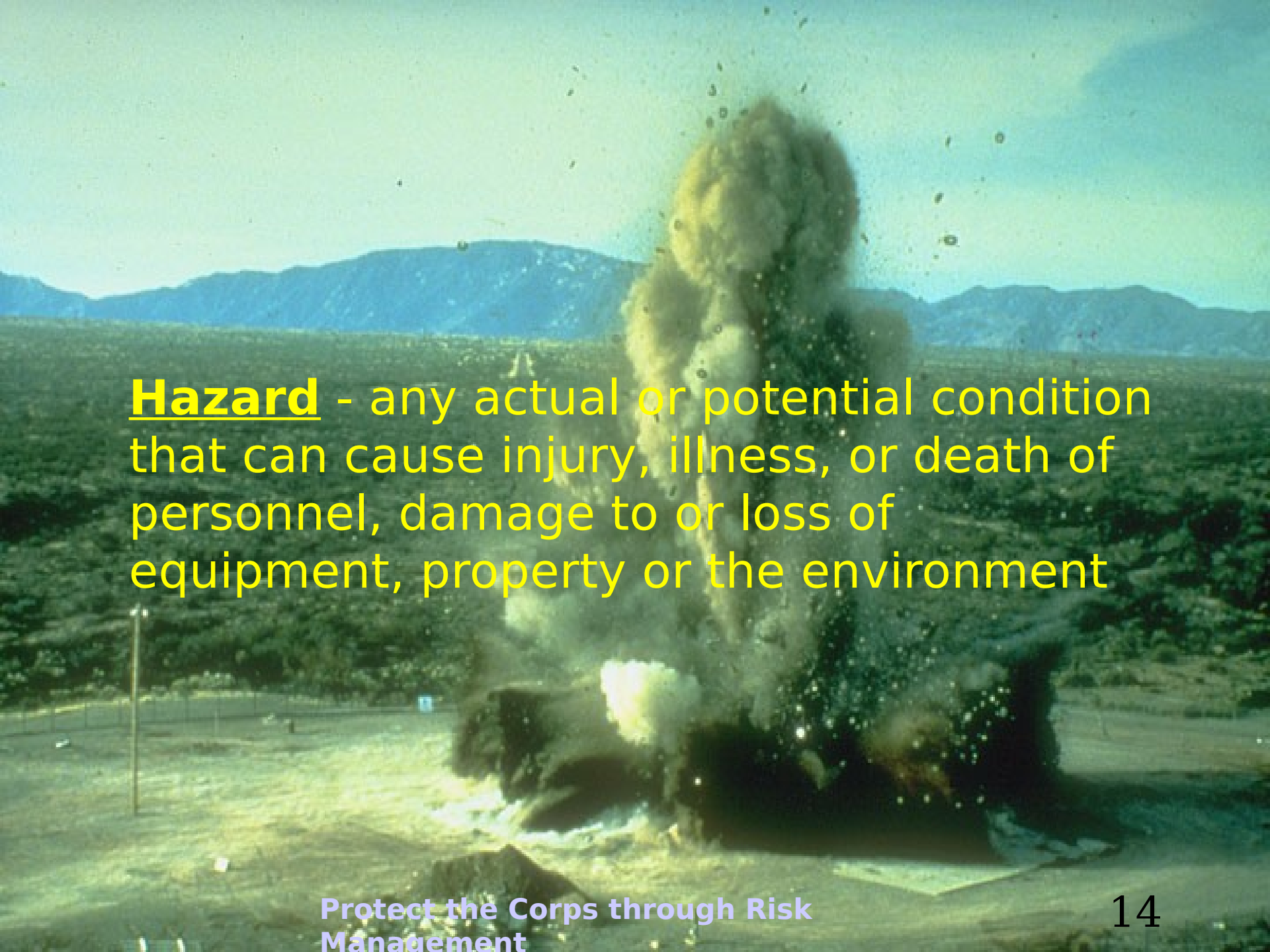
Mat Sinking Unit - Vicksburg Dist.

Risk Management Process

Step 1 - Identify the Hazards

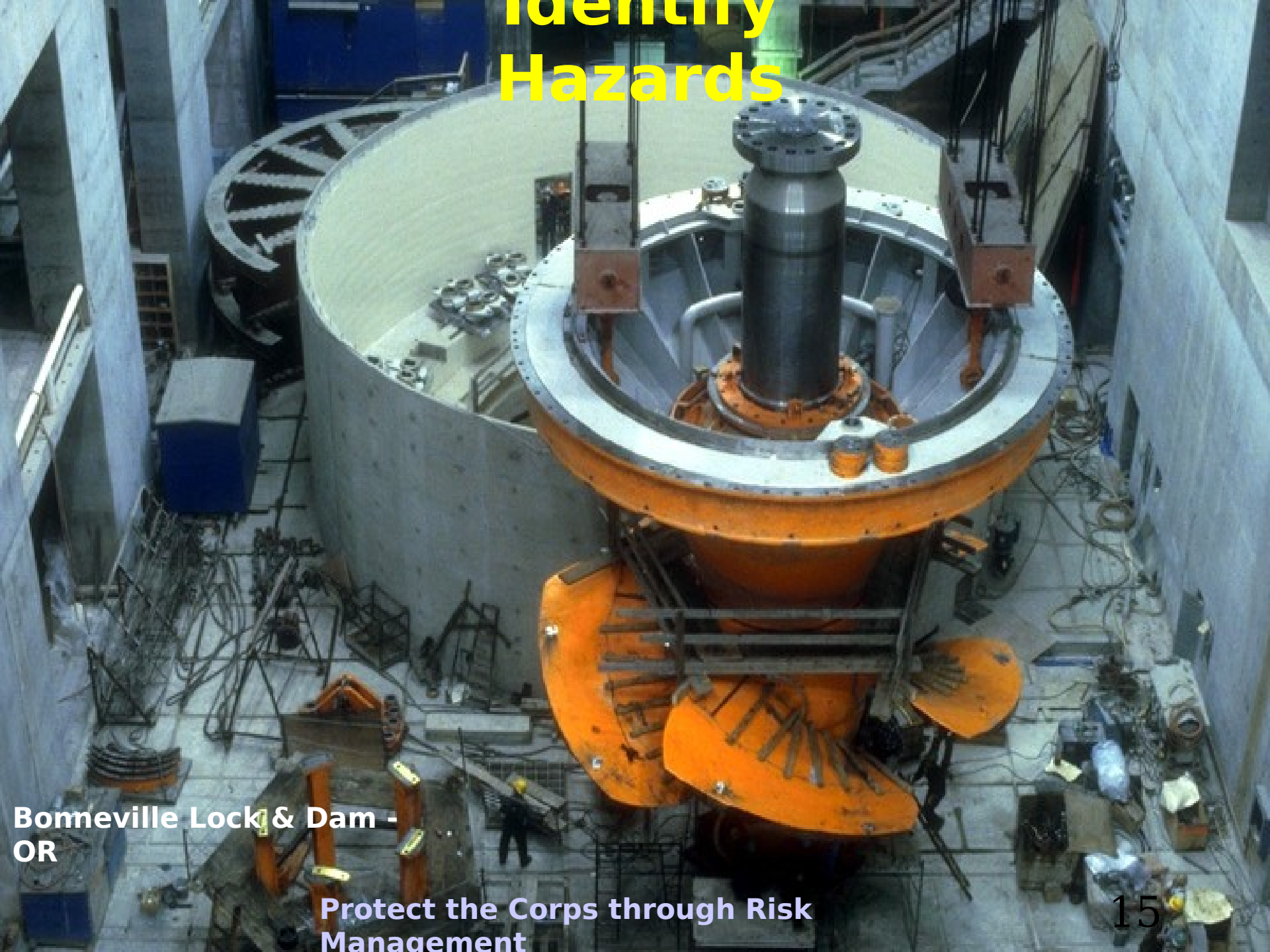
Ft. Monmouth - NJ

Step 1 - Identify the Hazards



Hazard - any actual or potential condition that can cause injury, illness, or death of personnel, damage to or loss of equipment, property or the environment

Identify Hazards

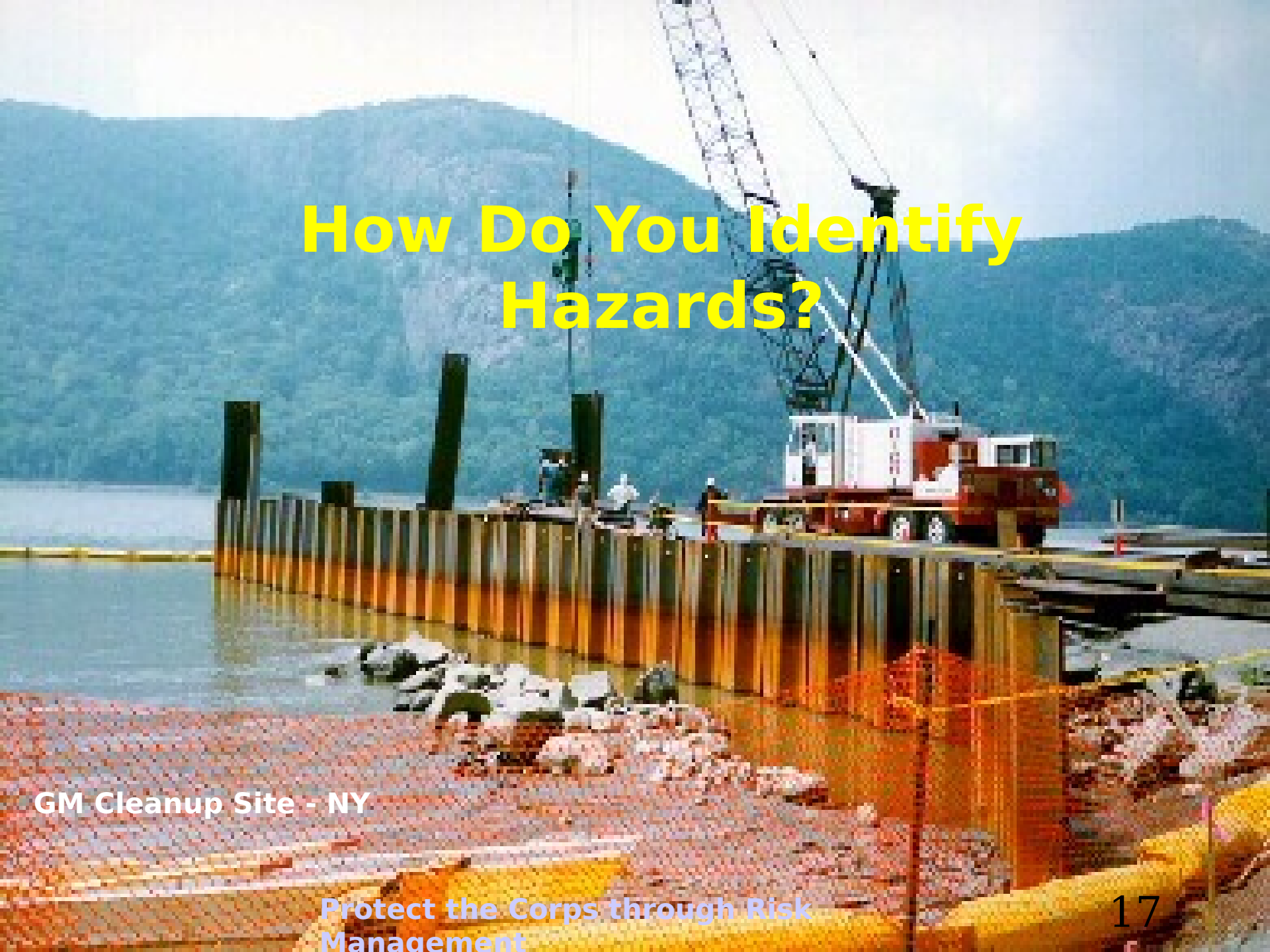


Bonneville Lock & Dam - OR

Identify Hazards

The objective is to identify those hazards most likely to result in personal injury, damage to property or the environment.

How Do You Identify Hazards?



GM Cleanup Site - NY

How Do You Identify Hazards?

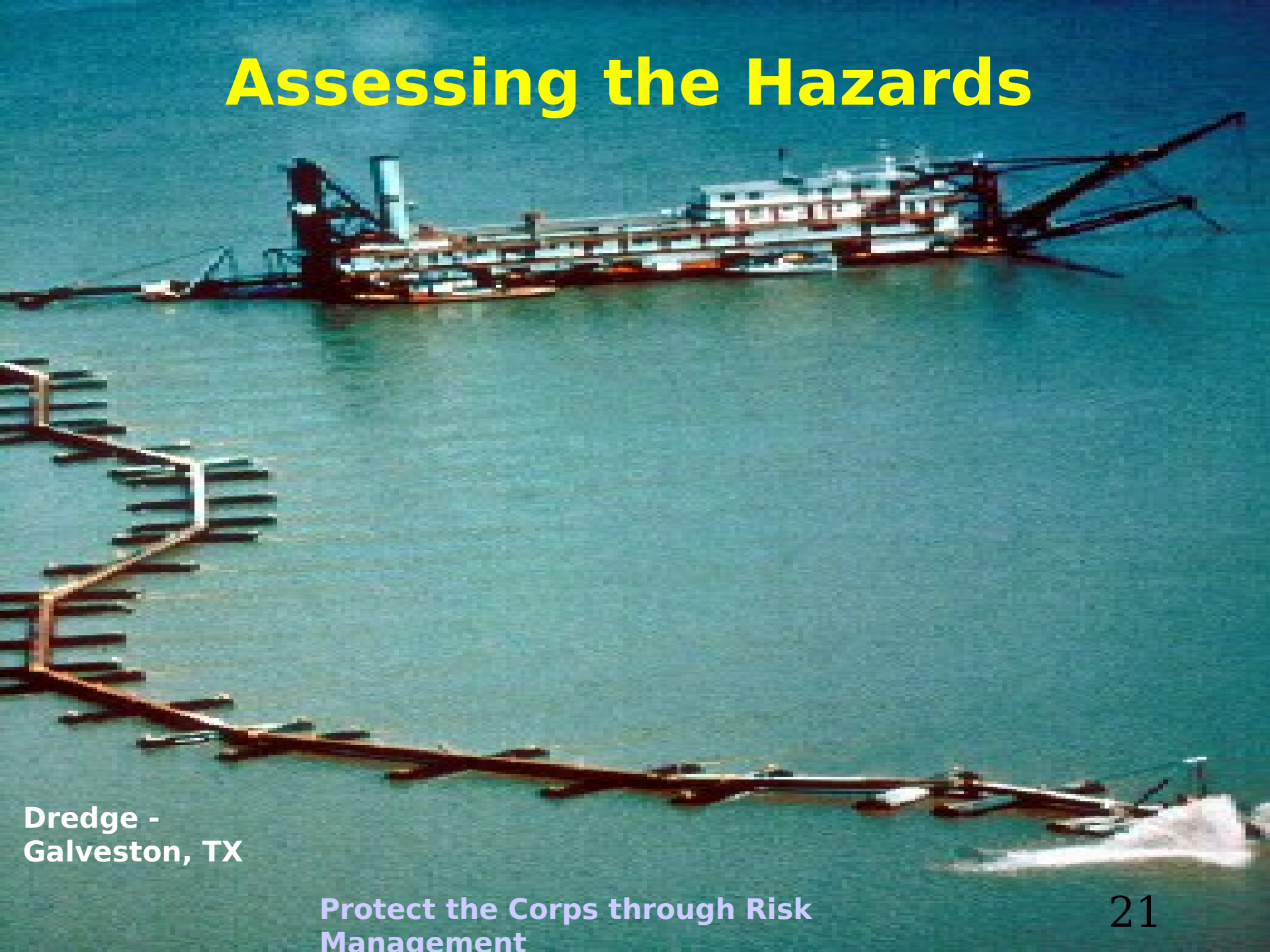
- Experience / Lessons Learned
- Brainstorming
- Safety inspections
- Publications
- Accident information
- Scenario thinking - what if?

Step 2 - Assess the Hazards

McNary Dam - OR

Step 2 - Assess the Hazards

Assessing the Hazards

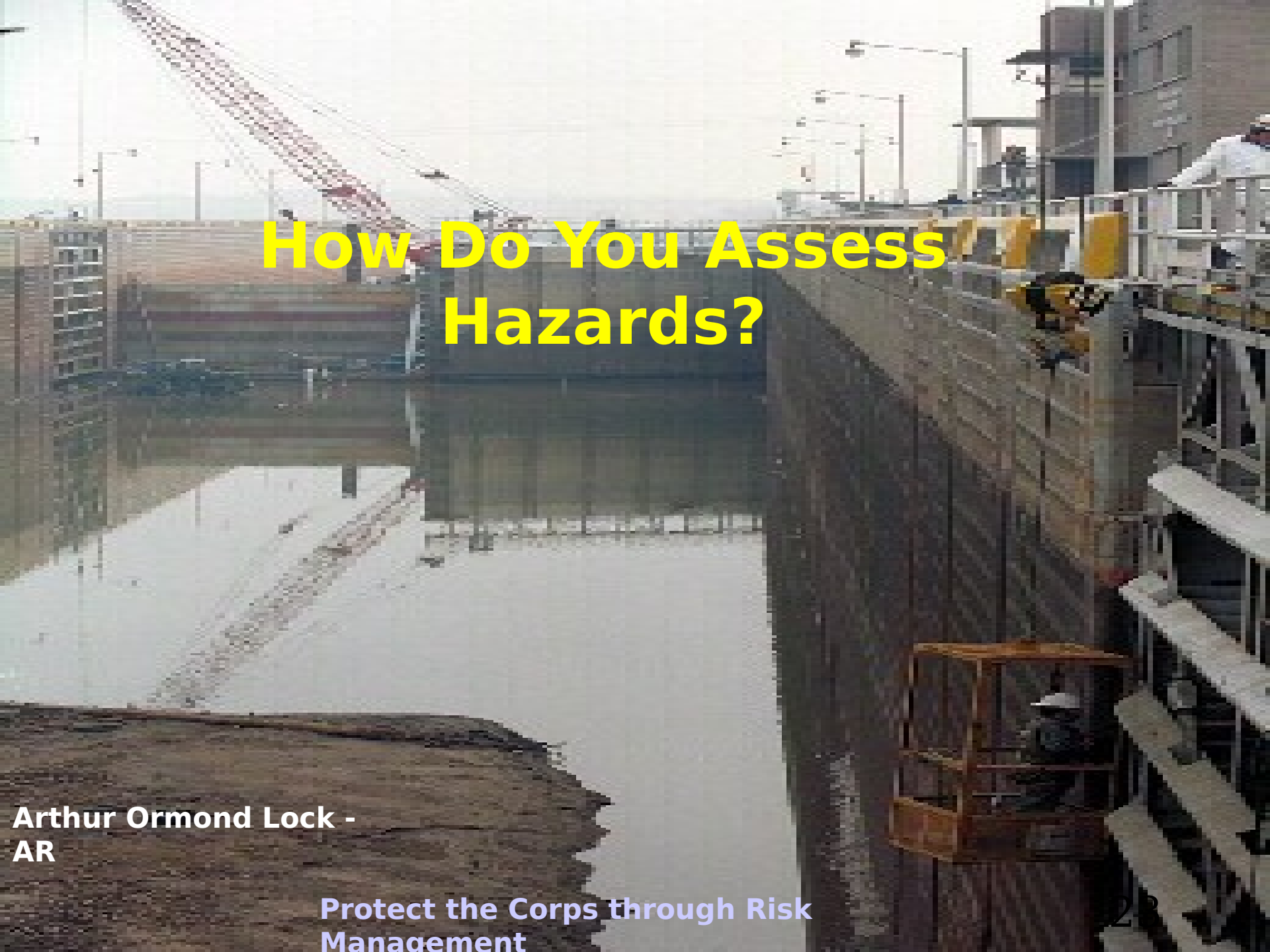


Dredge -
Galveston, TX

Assessing the Hazards

Assess the impact of each hazard in terms of potential loss and cost, based on the probability and severity should an incident occur.

How Do You Assess Hazards?



Arthur Ormond Lock - AR

How Do You Assess Hazards?

Through the use of tools such as:

- **Historical accident / injury data**
- **Intuitive analysis of the task**
- **Judgment**
- **Common sense**
- **Activity hazard analysis.**

Assessment

RISK ASSESSMENT MATRIX

E - EXTREMELY HIGH RISK
H - HIGH RISK
M - MODERATE RISK
L - LOW RISK

SEVERITY	PROBABILITY				
	FREQUENT	LIKELY	OCCASIONAL	SELDOM	UNLIKELY
CATASTROPHIC	E	E	H	H	M
CRITICAL	E	H	H	M	L
MARGINAL	H	M	M	L	L
NEGLIGIBLE	M	L	L	L	L

Risk Assessment

Kincheloe AFB - MI

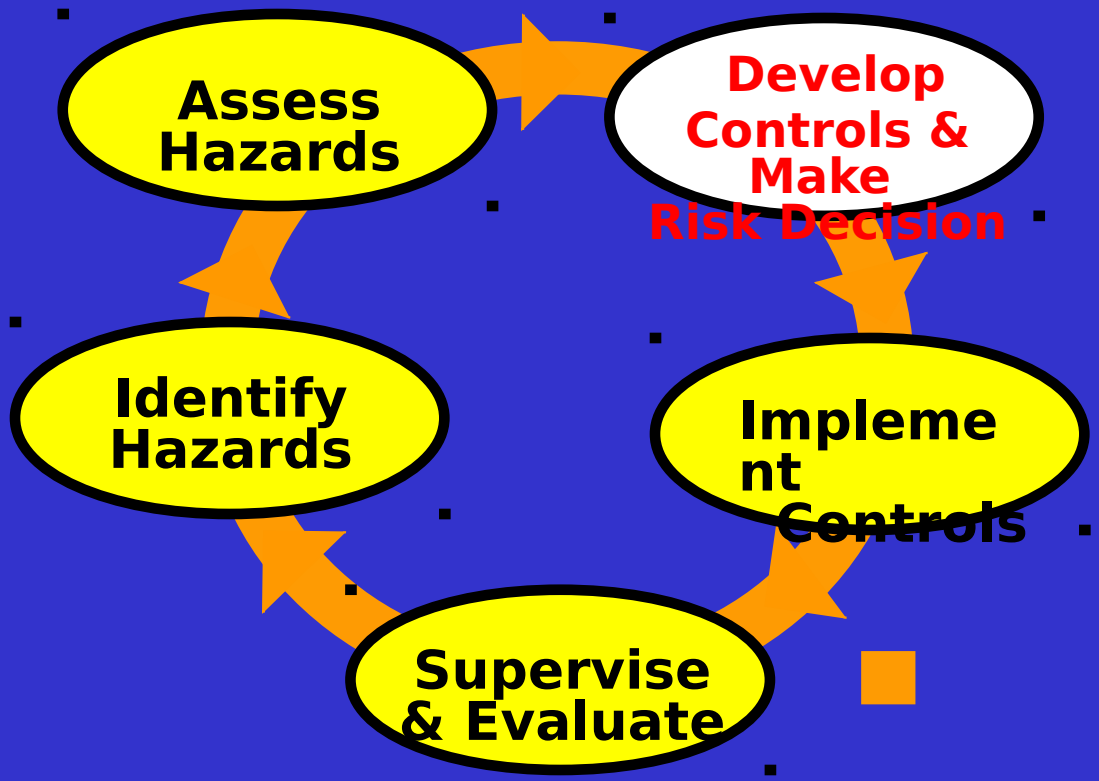
Risk Assessment

- Risk is the probability and severity of loss from exposure to a hazard
- Risk assessment defines the probability and severity of a mishap that could result from the hazard and determines the exposure of team members to that hazard.

Step 3 - Develop Controls & Make Decisions

Olmsted Lock & Dam - KY

Step 3 - Develop Controls & Make Decisions

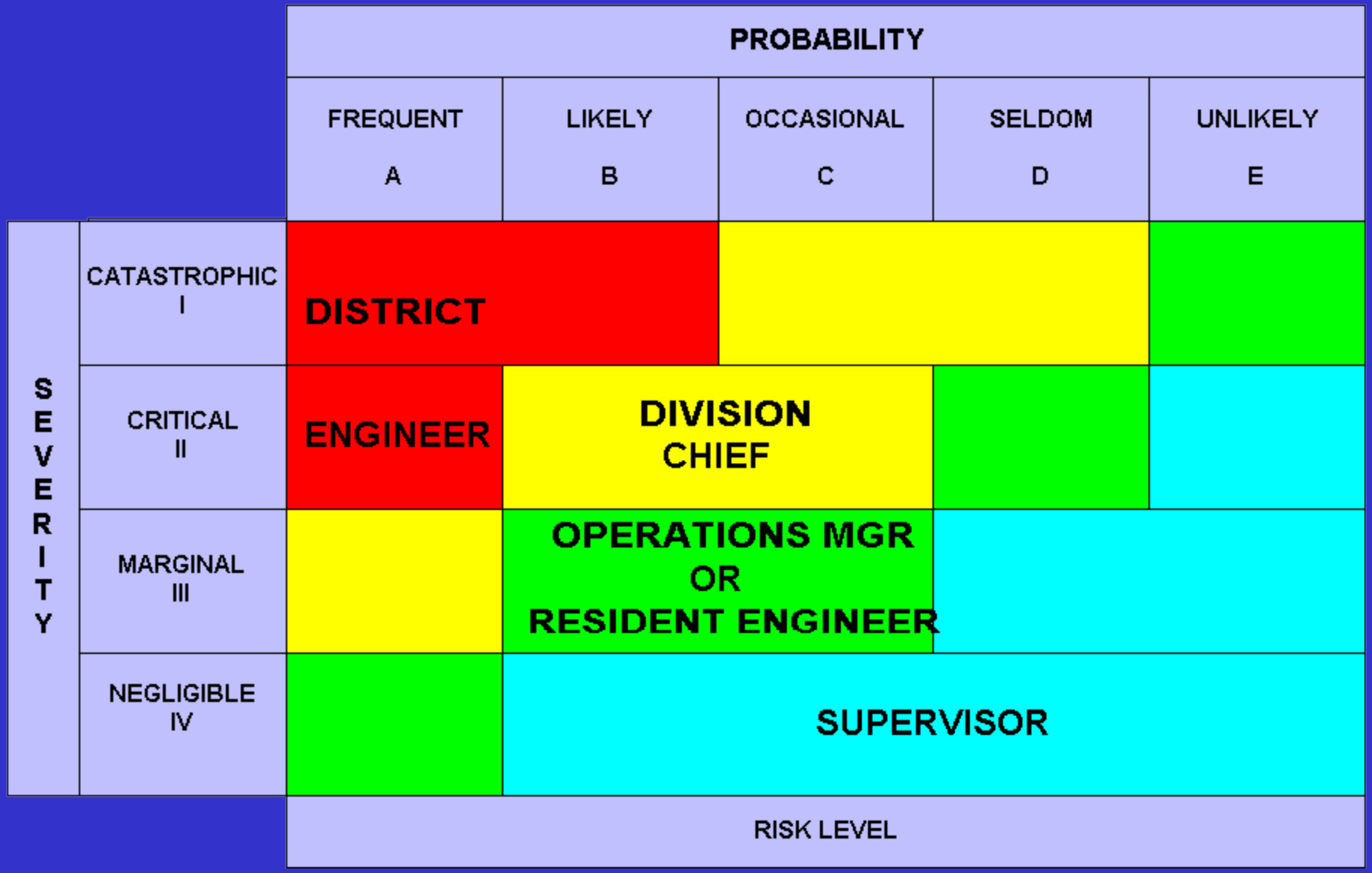


Step 3 - Develop Controls & Make Decisions

Seven Oaks Dam - CA

Step 3 - Develop Controls & Make Decisions

Develop control measures that eliminate the hazard or reduce the risk to an acceptable level.

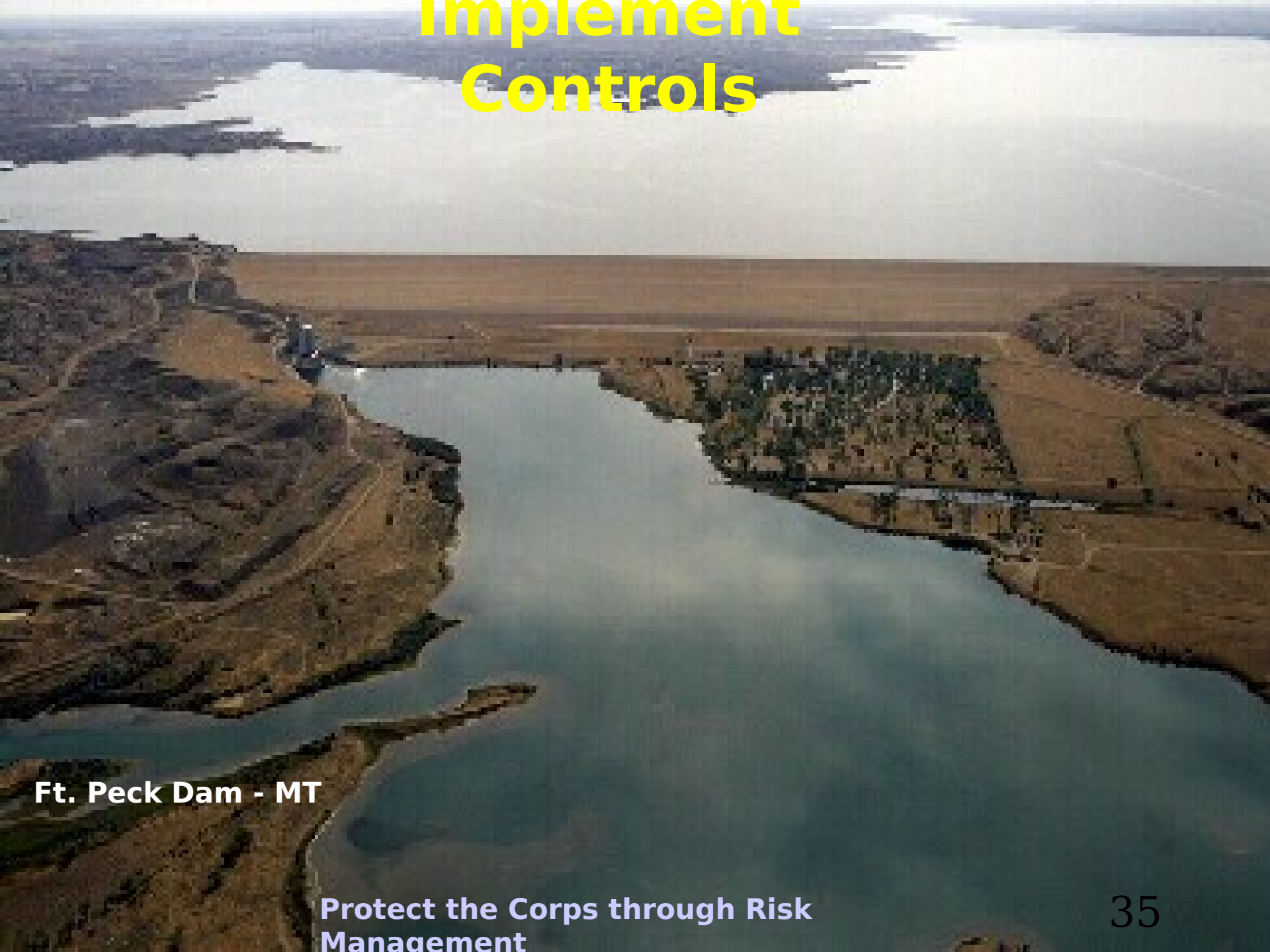

PROBABILITY
FREQUENT
A
LIKELY
B
OCCASIONAL
C
SELDOM
D
UNLIKELY
E
SEVERITY
CATASTROPHIC
I
CRITICAL
II
MARGINAL
III
NEGLIGIBLE
IV
DISTRICT
ENGINEER
DIVISION
CHIEF
OPERATIONS MGR
OR
RESIDENT ENGINEER
SUPERVISOR
RISK LEVEL

Step 4 - Implement Controls

Offutt AFB - NE

Step 4 - Implement Controls

Implement Controls



Ft. Peck Dam - MT

Implement Controls

Put controls in place that eliminate the hazards or reduces the risks.

Implementation Methods

Moody AFB - GA

Implementation Methods

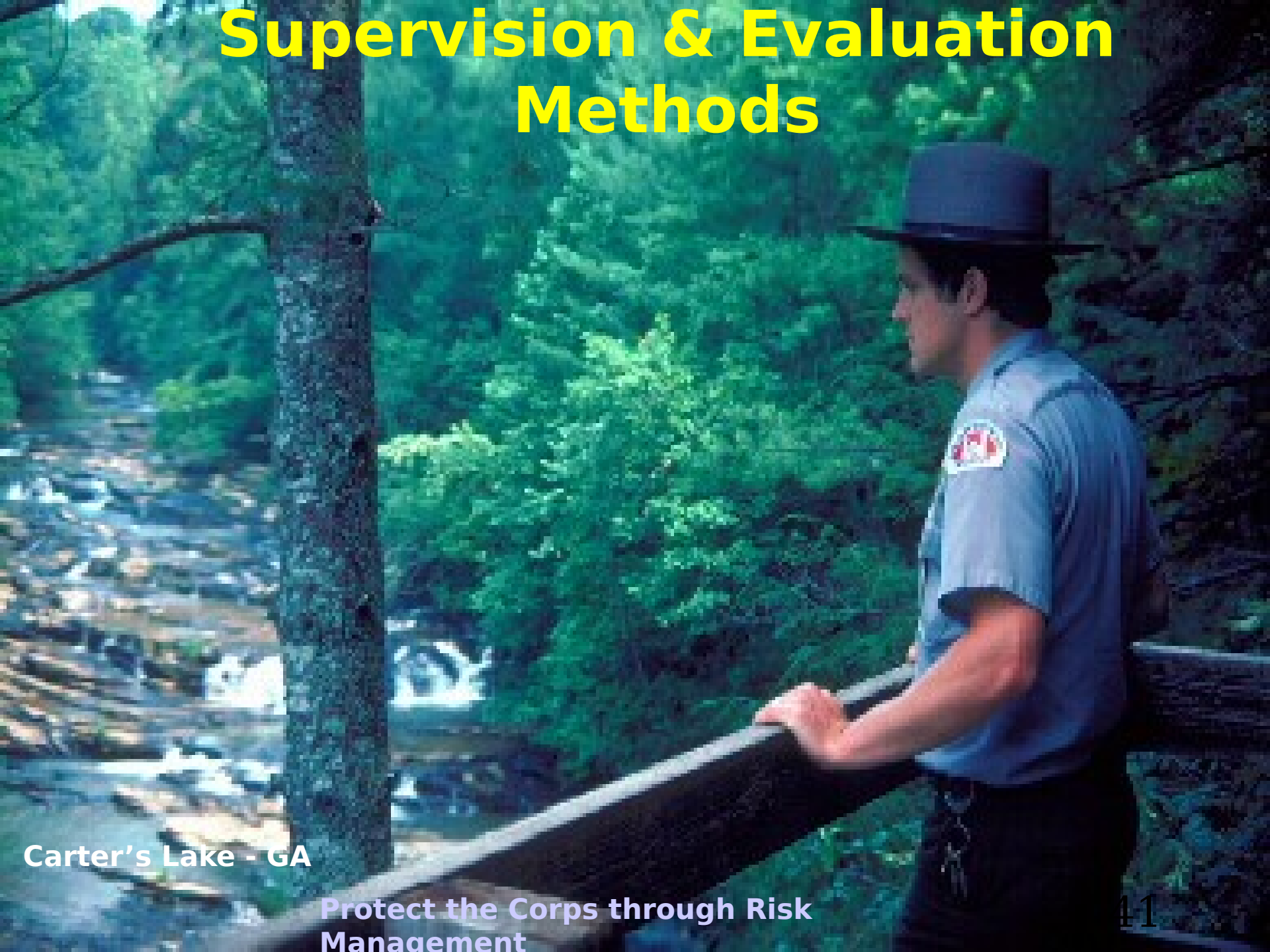
- Regulations and Policy Letters
- Standard Operating Procedures (SOP's)
- Tool-box Safety Meetings
- Activity Hazard Analysis
- Training
- Exercises.

Step 5 - Supervise & Evaluate

Dredge Wheeler - Mississippi River

Step 5 - Supervise & Evaluate

Supervision & Evaluation Methods

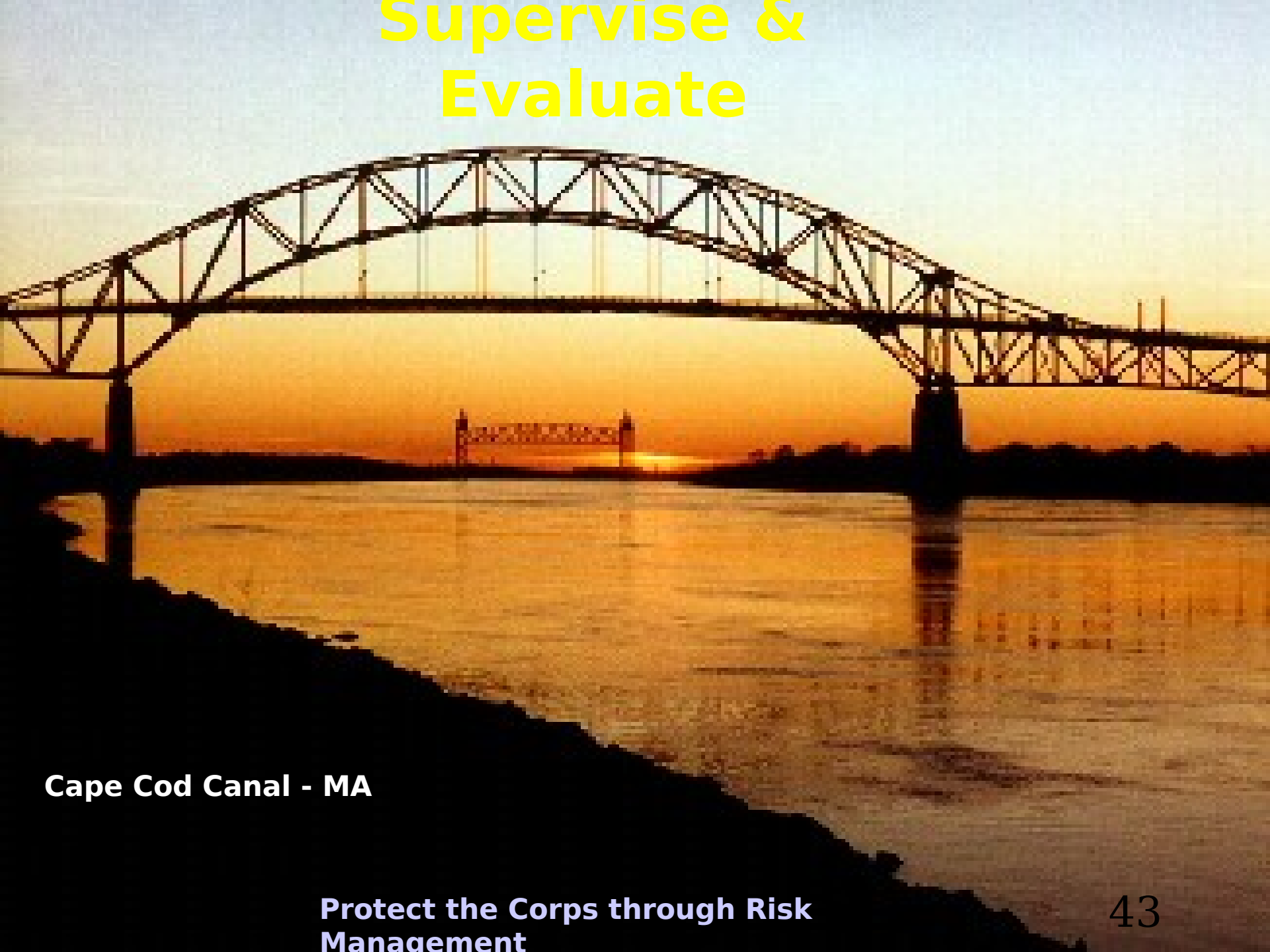


Carter's Lake - GA

Supervision & Evaluation Methods

- Perform to and enforce standards and controls
- Evaluate the effectiveness of controls and adjust / update as required.

Supervise & Evaluate



Cape Cod Canal - MA

Supervise & Evaluate

- You should continually evaluate the effectiveness of controls implemented. Adjust or update them as necessary

- Once the operation is complete evaluate overall effectiveness of the work to determine if changes and / or additional resources are needed.

5-Step Risk Management Recap

Pueblo Army Depot - CO

REFERENCES

EM 385-1-1

U. S. Army Corps of Engineers, Safety and Health Requirements Manual. Sep 96.

AR 385-10

Department of the Army, Army Safety Program. Feb 00.

Scenario 1

Moving a CO2 Cylinder

You need to move a CO2 cylinder (approx.. wt. 200 lbs.) from the storage locker outside the powerhouse to a Main Unit Generator located one floor away . The cylinder will need to be transited down two flights of stairs and carried 150 ft.for installation.

Instructor: this slide introduces the scenario, lays out the situation,
what, when, where and why.

1. Identify the Hazards

-
-
-
-
-
-
-
-

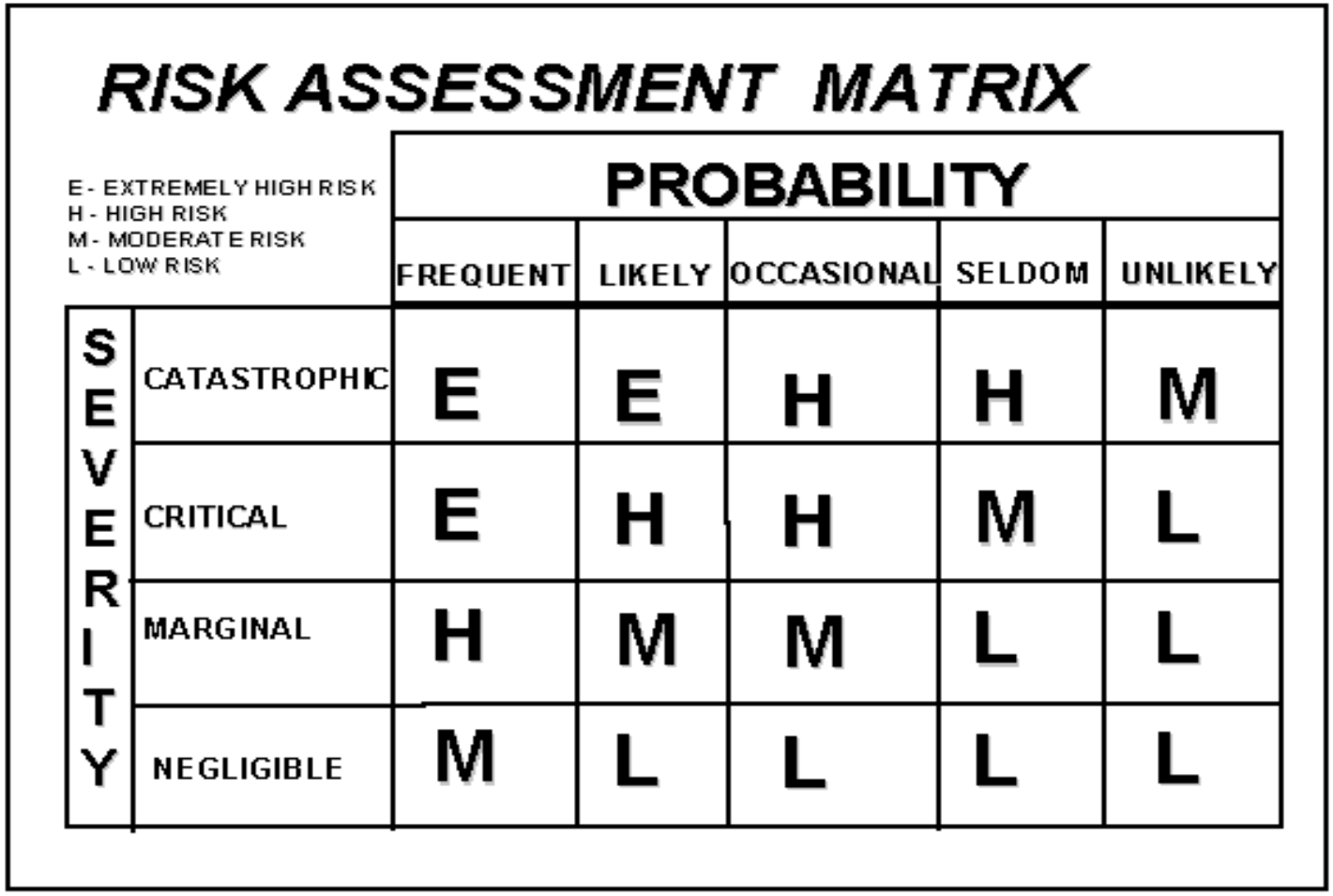
Instructor: After scenario is well understood, lead the class in Step One of Risk Management, identifying the hazards.

1. Identify the Hazards

- **Personnel injury, lifting**
- **Rigging**
- **Missile hazard (should the bottle drop)**
- **Equipment Operation**
- **Slip, Trip and Fall**
- **Forklift (equipment) operation**
-
-

Instructor: Here are some the possible hazards.

Assessment Tool



RISK ASSESSMENT MATRIX

E - EXTREMELY HIGH RISK
H - HIGH RISK
M - MODERATE RISK
L - LOW RISK

SEVERITY	PROBABILITY				
	FREQUENT	LIKELY	OCCASIONAL	SELDOM	UNLIKELY
CATASTROPHIC	E	E	H	H	M
CRITICAL	E	H	H	M	L
MARGINAL	H	M	M	L	L
NEGLIGIBLE	M	L	L	L	L

2. Assess the Hazards

Using the Risk Assessment Matrix on the previous slide, assign codes to your hazards.

	RAI
• Personnel injury, lifting	H
	H
	M
• Missile Hazard	
• Rigging hazard	

Instructor: Assign codes, don't get caught up arguing "H" vs. "M", go with gut feel and move on; it'll work out in the end. On mouse click you'll see some possible scenarios.

3. Make Risk Decisions and Implement Controls

	RAIs
• Personnel injury, lifting	H
• Missile hazard	H
• Rigging	M

Instructor: Align the hazards in priority order from hig
to lowest. On mouse click, you'll see some possibilities

4. Implement Controls

- **Personnel Injury, lifting**
  - **Brief safety requirements; have sufficient number of personnel available**
- **Rigging**
  - **Inspect equipment, verify rigging route**
- **Missile Hazard**
  - **Ensure safety equipment is in place. Inspect securing devices.**

Instructor: Have audience determine some controls and write them down; then contrast against some that have been developed.

5. Supervise

- Enforce controls
- Monitor effectiveness of controls
- Evaluate and adjust controls as the situation changes
- Ensure personnel are familiar with their situations.

"CHANGE" is the mother of all risk. If there is a change, a time critical process may have to be done on the spot

Scenario 2

Moving Furniture From an Office

You need to move several pieces of old furniture from the Administration Office in preparation for the new GSA furniture that will arrive next week. The occupied office has fax machines, computers and copying machines to contend with.

Instructor: this slide introduces the scenario, lays out the situation, what, when, where and why.

1. Identify the Hazards

-
-
-
-
-
-
-
-

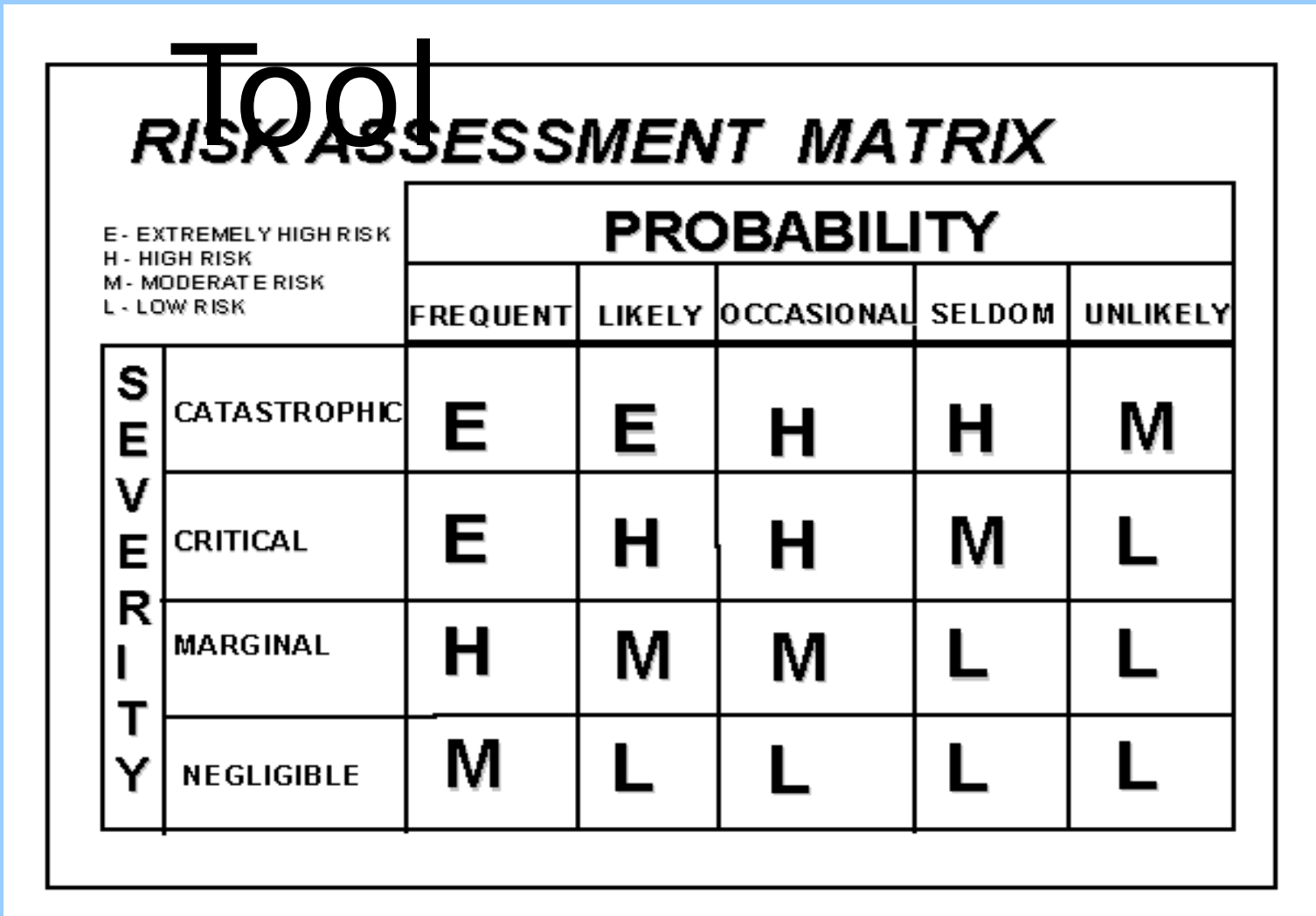
Instructor: After scenario is well understood, lead the class in Step One of Risk Management, identifying the hazards.

1. Identify the Hazards

- **Personnel injury, lifting**
- **Back Strain / Foot Injury**
- **Hand Injury**
-
-
-
-
-

Instructor: Here are some the possible hazards.

Assessment Tool



RISK ASSESSMENT MATRIX

E - EXTREMELY HIGH RISK
H - HIGH RISK
M - MODERATE RISK
L - LOW RISK

SEVERITY	PROBABILITY				
	FREQUENT	LIKELY	OCCASIONAL	SELDOM	UNLIKELY
CATASTROPHIC	E	E	H	H	M
CRITICAL	E	H	H	M	L
MARGINAL	H	M	M	L	L
NEGLIGIBLE	M	L	L	L	L

2. Assess the Hazards

Using the Risk Assessment Matrix on the previous slide, assign codes to your hazards.

	RAIs
• Personnel injury, lifting	H
• Slip, Trip and Fall	M

Instructor: Assign codes, don't get caught up arguing 'H' vs. 'M', go with gut feel and move on; it'll work out in the end. On mouse click you'll see some possible scenarios.

3. Make Risk Decisions and Implement Controls

	RAIs
• Personal Injury / Lifting	M
• Slip, Trip and Fall	H

Instructor: Align the hazards in priority order from highest to lowest. On mouse click, you'll see some possibilities.

4. Implement Controls

- **Lifting Hazard**
  - **Train workers on proper lifting techniques. Supply workers with proper lifting equipment**
- **Slip, Trip and Fall**
  - **Remove furniture in logical order to facilitate operation. Keep access path clear.**

Instructor: Have audience determine some controls and write them down; then contrast against some that have been developed.

5. Supervise

- Enforce controls
- Monitor effectiveness of controls
- Evaluate and adjust controls as the situation changes
- Ensure personnel are familiar with their situations.

"Be prepared"… Often times without proper planning, offices moves / renovations expose items such as Asbestos Floor Tiles under old carpeting

Scenario 3

Heavy Equipment Operations at Corp Owned Park

It's June… You need to re-grade a section of access road coming into one of your parks. The 4th of July is around the corner… time is of the essence!!! Your boss has said, get this work done no matter what it takes. Temperatures over the last week have been in the mid-90's.

Instructor: this slide introduces the scenario, lays out the situation,what, when, where and why.

1. Identify the Hazards

-
-
-
-
-
-
-
-

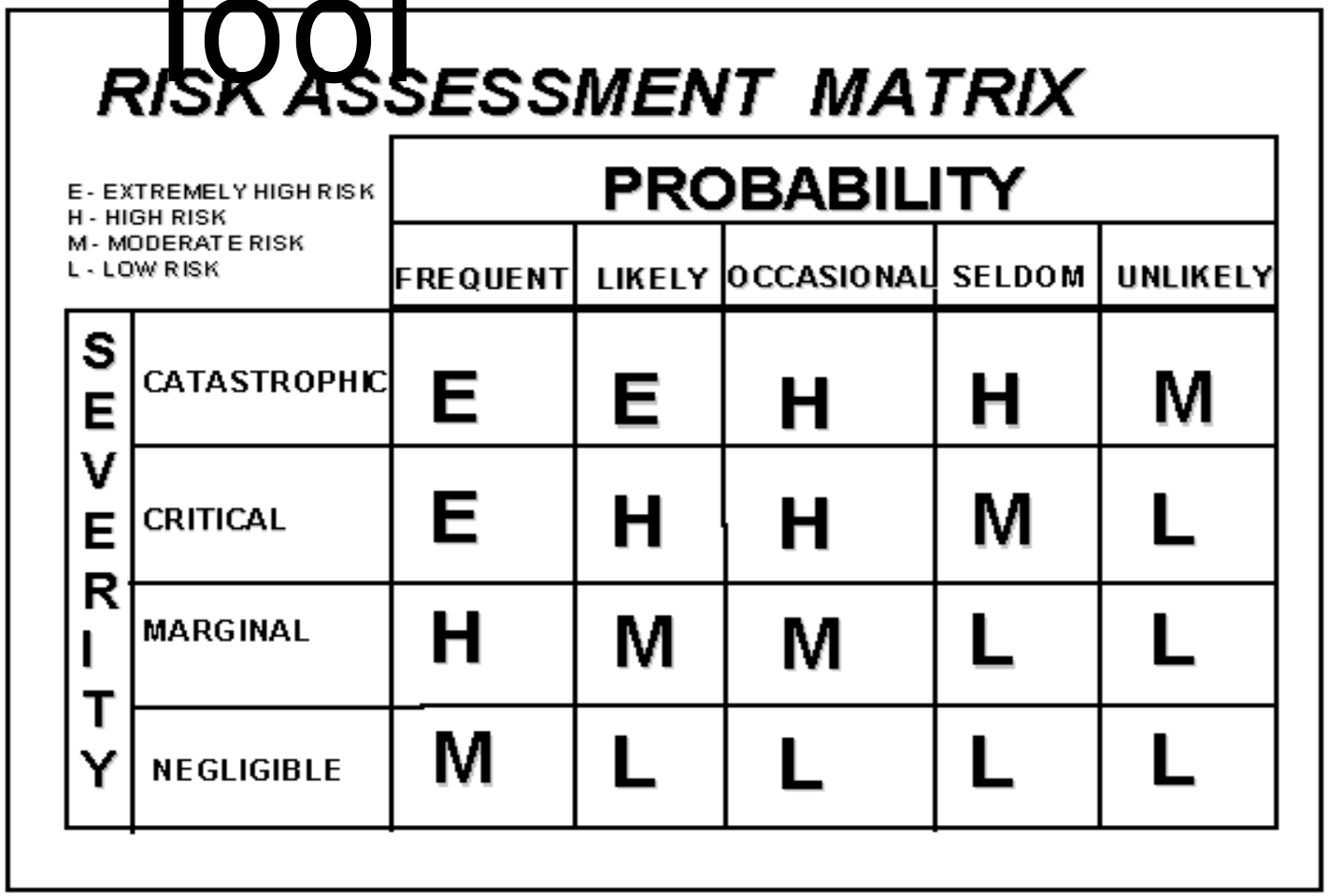
Instructor: After scenario is well understood, lead the class in Step One of Risk Management, identifying the hazards.

1. Identify the Hazards

- **Heavy Equipment Operations**
- **Noise**
- **Heat Stress**
- **Fatigue**
- **Uneven surfaces**
- **Traffic Control**
- **Dust**
- **Buried Utilities.**

Instructor: Here are some the possible hazards.

Assessment Tool



RISK ASSESSMENT MATRIX

E - EXTREMELY HIGH RISK
H - HIGH RISK
M - MODERATE RISK
L - LOW RISK

SEVERITY	PROBABILITY				
	FREQUENT	LIKELY	OCCASIONAL	SELDOM	UNLIKELY
CATASTROPHIC	E	E	H	H	M
CRITICAL	E	H	H	M	L
MARGINAL	H	M	M	L	L
NEGLIGIBLE	M	L	L	L	L

2. Assess the Hazards

Using the Risk Assessment Matrix on the previous slide, assign codes to your hazards.

	RAIs
• Heavy Equipment Operations	H
• Traffic Control	H
• Noise	H
• Heat Stress	H

Instructor: Assign codes, don't get caught up arguing 'H' vs. 'M', go with gut feel and move on; it'll work out in the end. On mouse click you'll see some possible scenarios.

3. Make Risk Decisions and Implement Controls

	RAIs
• Heavy Equipment	H
Operations	H
• Traffic Control	H
• Noise	H
• Heat Stress	

Instructor: Align the hazards in priority order from highest to lowest. On mouse click, you'll see some possibilities.

4. Implement Controls

- **Equipment Operations**
- **Traffic Control**
- **Noise**
- **Heat Stress**

- **Establish access / egress flow pattern. Station flagger to facilitate**
- **Assure all operators are properly trained / certified**
- **Establish engineering controls to minimize. Provide workers with hearing protection**
- **Increase fluid intake. Facilitate frequent rest periods.**

Instructor: Have audience determine some controls and write them down; then contrast against some that have been developed.

5. Supervise

- **Monitor effectiveness of controls**
- **Evaluate and adjust controls as the situation changes**
- **Ensure personnel are familiar with their situations**
- **Enforce controls.**

“Be prepared”…It may be necessary to alter the work schedule to minimize site congestion and reduce

Scenario 4

Removing Gates From Tailrace Slot

One of your final steps in placing your generator unit back online is the process of removing the head gates and the tailrace stoplogs. In this scenario, identify some of the risks associated with pulling the tail logs from their slot.

Instructor: This slide introduces the scenario, lays out t what, when, where and why.

1. Identify the Hazards

-
-
-
-
-
-
-
-

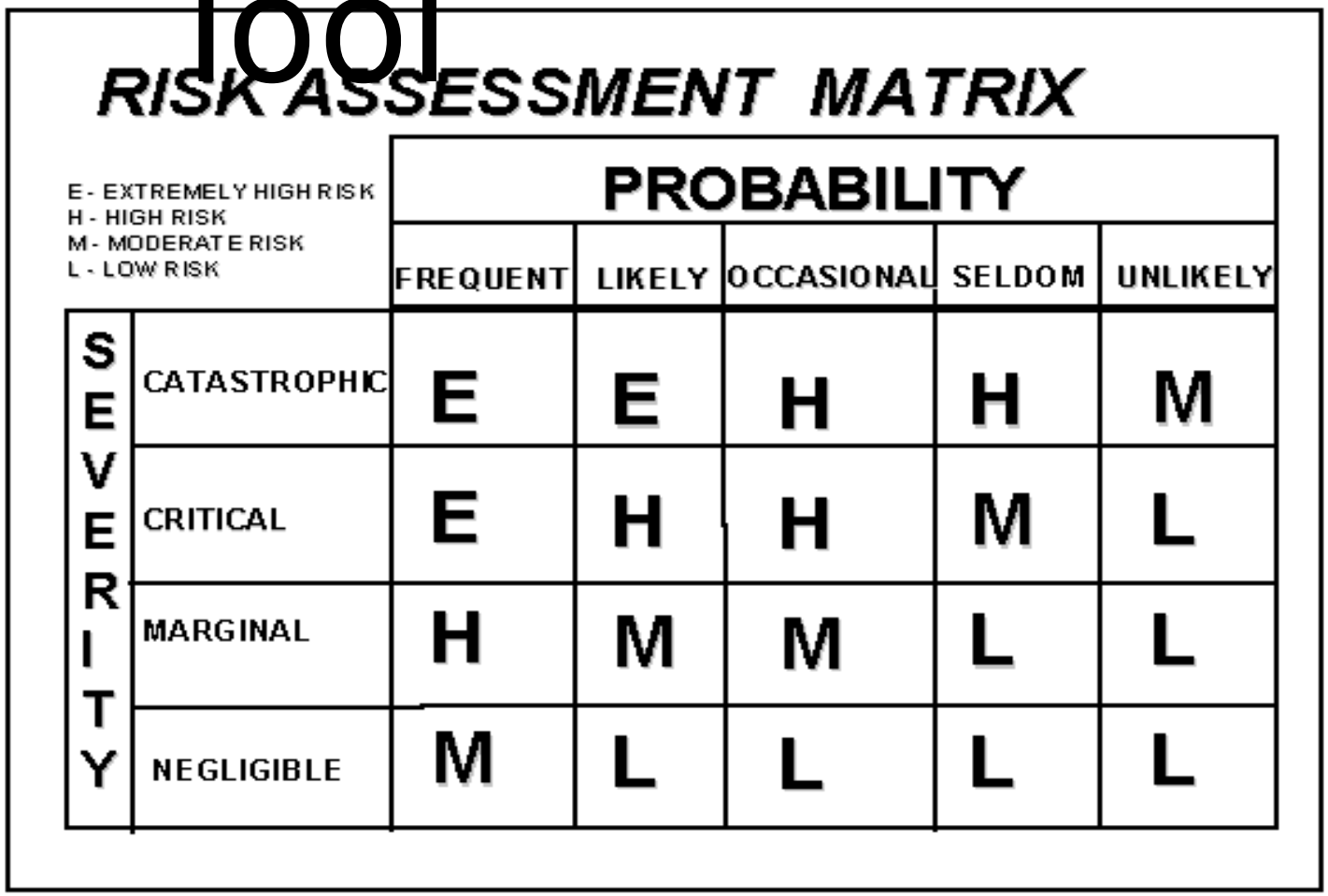
Instructor: After scenario is well understood, lead the class in Step One of Risk Management, identifying the hazards.

1. Identify the Hazards

- **Traffic flow on the tailrace deck**
- **Crane Operations**
- **Communications with Crane Operator**
- **Rigging**
- **Tailrace stoplog getting wedged**
- **Rigging Equipment**
-
-

Instructor: Here are some the possible hazards.

Assessment Tool



RISK ASSESSMENT MATRIX

E - EXTREMELY HIGH RISK
H - HIGH RISK
M - MODERATE RISK
L - LOW RISK

SEVERITY	PROBABILITY				
	FREQUENT	LIKELY	OCCASIONAL	SELDOM	UNLIKELY
CATASTROPHIC	E	E	H	H	M
CRITICAL	E	H	H	M	L
MARGINAL	H	M	M	L	L
NEGLIGIBLE	M	L	L	L	L

2. Assess the Hazards

Using the Risk Assessment Matrix on the previous slide, assign codes to your hazards.

	RAIs
• Heavy Equipment Operations	H
• Traffic Flow	M
• Communications	H
• Rigging	H

Instructor: Assign codes, don't get caught up arguing 'H' vs. 'M', go with gut feel and move on; it'll work out in the end. On mouse click you'll see some possible scenarios.

3. Make Risk Decisions and Implement Controls

	RAIs
• Heavy Equipment	H
Operations	H
• Rigging	H
• Communications	M
• Traffic Flow	

Instructor: Align the hazards in priority order from hig
to lowest. On mouse click, you'll see some possibilities

4. Implement Controls

- **Equipment Operations**
  - **Assure all operators are properly trained / certified. Check running lines on crane**
- **Rigging**
  - **Inspect rigging equipment prior to use. Inspect: hooks, shack-les, rings, pad eyes and lines**
- **Communi-cations**
  - **Verify hand signals w/operator and/or verify good radio communications**
- **Traffic Flow**
  - **Ensure that a signal person is present during the operation.**

Instructor: Have audience determine some controls and write them down; then contrast against some that have been developed.

5. Supervise

- **Enforce controls**
- **Monitor effectiveness of controls**
- **Evaluate and adjust controls as the situation changes**
- **Ensure personnel are familiar with their situations.**

“Advanced Planning” - An e-mail to employees identifying work activities in a specific area can alleviate some potential risk

You have just completed the U.S. Army Corps of Engineers

Risk Management Chain Training

If there are further question or comments, please see contact information below.

CONTACT:

Samuel G. Testerman, PE, CSP

Systems and Engineering Program Manager

202-762-8668

DSN: 763-8668

TO USE:

Win95/98/2000 – Go to the "Start" button, select "Run", and enter D:\PPVIEW32.EXE" (where D:\ is your CD-ROM drive). Follow instructions on screen. Select RISK.PPT to run. Detailed instructions in "README.TXT" file on disk.